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EXAMINER	
KARIMI, PEGEMAN	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/721,968	FERGASON, JAMES L.	
	Examiner	Art Unit	
	PEGEMAN KARIMI	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,8-11,13-21,24,28,29,31 and 35-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-6, 8-11, 13-21, 24, 28, 29, 31, 35-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed on September 3rd, 2009 has been entered and considered by the examiner.

Claim Objections

2. Claim 9 is objected to because of the following informalities:

Claim 9 depends upon a canceled claim 7.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3-7, 16, 17, 19, 20, 32, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christie (U.S. Patent No. 6,593,957) in view of DeGroof (U.S. Patent No. 5,598,282).

As to claim 1, Christie teaches a display system comprising:

a pair of displays (displays of lamps 200r and 200l), and

a beam splitter (207) so positioned relative to the two displays at the bisectrix of said angle (as can be seen in Fig. 3 the beam splitter is located at the bisectrix of the two displays) to combine images from the displays (the two images of the displays are combined as can be seen with the black and dotted arrows) whereby one image is transmitted by the beam splitter (the black arrow from 200l is transmitted) and the other image is reflected by the beam splitter (the dotted arrow is reflected by the beam splitter) to provide direct view of images from the displays (the beam splitter directs both images in parallel).

Wherein the displays (displays of lamps 200r and 200l) each output polarized light incident on the beam splitter (the output polarizer's of image LCDs 205r and 205l are oriented in orthogonal directions toward beam splitter 207), (col. 9, lines 13-16), the polarization of the light incident on the beam splitter from each display being along the same direction (the outputted polarized light is combined by beam splitter 207 wherein the light is directed in a light path toward a projection lens or lens assembly 210, thus the output polarized light are along the same direction toward the lens assembly 210), (col. 9, lines 15-17); and

Wherein the images can be separated based on polarization (the images are separated based on the polarization wherein the images polarized by the display of lamp 200r are received by the right eye (view zone V_r) and the images polarized by the display of lamp 200l are received by the left eye (view zone V_l),

Christie does not mention the displays being at an obtuse angle to each other.

DeGroof teaches the displays being at an obtuse angle to each other (Fig. 3C, col. 2, lines 63-64). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the angle between the displays to be an obtuse angle of DeGroof to the display system of Christie because in order to have a normal viewing the displays are opened to an obtuse angle (col. 2, lines 66-67).

As to claim 3, DeGroof teaches the displays are at an angle greater than 90 degrees to about 170 degrees relative to each other (the displays have an angle between 90 and 120 degrees), (col. 2, lines 66-67).

As to claim 4, DeGroof teaches the displays are at an angle of from about 110 degrees to about 140 degrees relative to each other (the displays have an angle between 90 and 120 degrees), (col. 2, lines 66-67).

As to claim 5, DeGroof teaches the displays are at an angle of approximately 120 degrees relative to each other (the displays have an angle between 90 and 120 degrees), (col. 2, lines 66-67).

As to claim 6, Christie teaches the displays are flat panel LCDs (col. 9, lines 9-12).

As to claims 16 and 35, Christie teaches a method of displaying stereo images, comprising:

simultaneously (the image beams are polarized at the same time) displaying a left image on a first display (image of 200l is displayed from 205l) and a right image on a second display (image of 200r is displayed from 205r) such that the left and right images have the optical polarization in the same direction (col. 9, lines 13-14), and

using a beam splitter (207) so positioned relative to the first and second displays (see fig. 3) that one can be viewed directly through the beam splitter (the beam indicated by a black arrow outputted from 205l) and the other can be viewed by reflected light from the beam splitter (the beam indicated by a dotted arrow outputted from 205r)

combining those images in a common light path (the two beams are combined and are transmitted in parallel) such that the optical polarization of the left image portion and the right image portion are different (col. 9, lines 31-33) in such common light path such that the image portions can be separated based on optical polarization (displaying the right-eye and left-eye image), (col. 9, lines 9-12).

Christie does not mention the displays being at an obtuse angle to each other.

DeGroof teaches the displays being at an obtuse angle to each other (Fig. 3C, col. 2, lines 63-64). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the angle between the displays to be an obtuse angle of DeGroof to the display system of Christie because in

order to have a normal viewing the displays are opened to an obtuse angle (col. 2, lines 66-67).

Claim 35 additionally recites "the left and right images have optical polarization along the same direction"

Christie teaches the left and right images (images from display of light bulbs 200r and 200l) have optical polarization along the same direction (the direction of the polarized lights from the two displays of lamps 200r and 200l is toward a projection lens assembly 210).

As to claim 17, Christie teaches discriminating the respective images in the common light path using optical polarization (205r displays the right-eye image and 205l displays the left-eye image), (col. 9, lines 9-14).

As to claims 19 and 36, Christie teaches a method of presenting a stereoscopic image for viewing, comprising:

presenting a left eye image on a display (image outputted from 205l),

presenting a right eye image on another display (image outputted from 205r)

both said presenting steps presenting such images having optical polarization in the same direction (both output polarizations of the image LCDs are in orthogonal directions, col. 9, lines 13-14), and

using a beam splitter (207) that is so positioned relative to the two displays (the beam splitter is positioned between the two displays, see fig. 3) combining in a

substantially common light path (the two beams are combined and turned into a parallel form) the respective images such that the respective images in the common light path have different optical polarization (col. 9, lines 32-33), (polarization in a vertically and horizontally orientation), whereby

the images can be separated based on polarization so that one image can be viewed directly through the beam splitter by one eye (the beam represented by Black arrow is polarized by LCD 205l and displaying the left-eye image) and the other can be viewed by reflected light from the beam splitter by the other eye (the beam represented by dotted arrow is polarized by LCD 205r and displaying the right-eye image).

Christie does not mention the displays being at an obtuse angle to each other.

DeGroof teaches the displays being at an obtuse angle to each other (Fig. 3C, col. 2, lines 63-64). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the angle between the displays to be an obtuse angle of DeGroof to the display system of Christie because in order to have a normal viewing the displays are opened to an obtuse angle (col. 2, lines 66-67).

Claim 36 additionally recites the limitation of “both said presenting steps presenting such images having optical polarization along the same direction”

Christie teaches both said presenting steps presenting such images having optical polarization along the same direction (the direction of the polarized lights from the two displays of lamps 200r and 200l is toward a projection lens assembly 210).

As to claim 20, Christie teaches discriminating between the left eye image and right eye image for viewing by respective left and right eyes the respective left and right eye images from the light in the common light path (205r displays the right-eye image and 205l displays the left-eye image), (col. 9, lines 9-14).

As to claim 32, Christie teaches a system providing a pair of superpositioned images separable by polarization (col. 9, lines 9-14), (images from LCD 205r and 205l), comprising two liquid crystal display panels (205r and 205l), and

a beam splitter at the bisectrix of the angle (beam splitter 207, see fig. 3).

Christie does not mention the displays being at an obtuse angle to each other.

DeGroof teaches the displays being at an obtuse angle to each other (Fig. 3C, col. 2, lines 63-64). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the angle between the displays to be an obtuse angle of DeGroof to the display system of Christie because in order to have a normal viewing the displays are opened to an obtuse angle (col. 2, lines 66-67).

As to claim 34, Christie teaches each liquid crystal display panel (205l and 205r) is of a size and shape (size is large enough to be placed in front of 200r and 200l), (flat shape to direct light in a straight line toward beam splitter) capable of providing a

directly viewed image (the light beams are directly projected on the beam splitter 207 and are then combined in parallel to be directed to the viewers eyes).

5. Claims 8-11, 13-15, 18, 21, 28, 29, 31, 37, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christie in view of DeGroof and further in view of Jachimowicz (U.S. Patent No. 4,995,718).

As to claims 8, 28, and 37, Christie teaches a display system comprising:

a pair of displays (displays of lamps 200r and 200l),

having a polarized light outputs (col. 9, lines 13-14), the polarization direction for the light output by both displays being the same (both output polarizations of the image LCDs are directed toward a projection lens assembly 210, therefore the output polarization of the displays is the same directed toward the lens assembly 210); and

a beam splitter (207) so positioned relative to the two displays at the bisectrix of said angle (beam splitter is located at the bisectrix of the two displays, Fig. 3) to combine images from the displays whereby one image is transmitted by the beam splitter (the black arrow represents polarized output light and is transmitted by the beam splitter 207) and the other image is reflected by the beam splitter (the dotted line arrow represents polarized output light and is reflected by the beam splitter 207) to provide direct view of images from the displays (the polarized lights are re routed for a direct view as can be seen in Fig. 3); and

the LCDs (col. 9, lines 9-12).

Christie does not mention the displays being at an obtuse angle to each other.

DeGroof teaches the displays being at an obtuse angle to each other (Fig. 3C, col. 2, lines 63-64). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the angle between the displays to be an obtuse angle of DeGroof to the display system of Christie because in order to have a normal viewing the displays are opened to an obtuse angle (col. 2, lines 66-67).

Christie and DeGroof do not mention right and left circular polarized light.

Jachimowicz teaches wherein the polarization is modified by adding quarter wave plates (48, Fig. 2), respectively, to the light paths (e.g. 20 and 16) so that the images from the respective displays as viewed via the beam splitter (22) are separated by right and left circular polarized light (col. 3, lines 57-59). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the right and left circular polarized light of Jachimowicz to the display system of Christie as modified by DeGroof because to provide the viewer with a full color 3D image screen (col. 3, lines 65-66).

Claim 28 additionally recites a new limitation of “wherein the polarized light outputs of the pair of display devices are polarized along the same direction”

Christie teaches the polarized light outputs of the pair of display devices are polarized along the same direction (both output polarizations of the image LCDs are directed toward a projection lens assembly 210, therefore the output polarization of the displays is in the same directed toward the lens assembly 210).

Claim 37 recites a new limitation of “wherein the beam splitter combines images while rotating the plane of linear polarization or sense of circular polarized light".

Christie teaches the beam splitter (207) combines images (as can be seen in Fig. 3 the beam splitter combines the two images from the display of lamps 200r and 200l) while rotating the plane of linear polarization or sense of circular polarized light (the linear polarization of the light outputted by the display of lamp 200r is rotated by 90 degrees, therefore the beam splitter combines and at the same time rotates the linear polarization of the light outputted by the display of lamp 200r).

As to claim 9, Jachimowicz teaches circular polarization is created by a single quarter wave plate (col. 3, lines 57-59) located between the beam splitter and the eye of a viewer (as can be seen in Fig. 2, the quarter wave plate is between the beam splitter and the eye of a viewer).

As to claim 10, this claim differs from claim 8 only in that the limitations

“wherein the images can be separated based on polarization”; and

“wherein the polarization for both displays is circular in the same sense” are additionally recited.

“wherein the displays each output polarized light incident on the beam splitter"

Christie teaches the displays each output polarized light incident on the beam splitter (as can be seen in Fig. 3 the displays output polarized light incident on the beam splitter 207);

Jachimowicz teaches wherein the images can be separated based on polarization (images are separated to left and right circular polarization) and wherein the polarization for both displays is circular (col. 3, lines 57-58) wherein the polarization of "S" and "P" linear polarizations may convert to left and right circular polarization states, wherein these "S" and "P" linear polarizations are Red, Green, and Blue image displays, Thus, the polarization for the displays is in the same sense of being converted to left and right circular polarization states).

As to claim 11, Jachimowicz teaches the beam splitter combines images from both displays (e.g. red and green image displays) to provide viewable overlapping images (projection lens causes the viewable images to overlap and displays the image on the screen) that respectively have circular polarization in opposite directions (linear polarizations may be converted to left and right circular polarization).

As to claim 13, DeGroof teaches the displays are at an angle greater than 90 degrees to about 1 70 degrees relative to each other (the displays have an angle between 90 and 120 degrees), (col. 2, lines 66-67).

As to claim 14, DeGroof teaches the displays are at an angle of from about 110 degrees to about 140 degrees relative to each other (the displays have an angle between 90 and 120 degrees), (col. 2, lines 66-67).

As to claim 15, DeGroof teaches the displays are at an angle of approximately 120 degrees relative to each other (the displays have an angle between 90 and 120 degrees), (col. 2, lines 66-67).

As to claim 18, Jachimowicz teaches the images are color images (e.g. red, green, blue), each being composed of an assemblage of lines of different respective colors (20, 16, and 26), and wherein

the color image from the first display is an arrangement in a one sequence (color image red is in an “s” polarization sequence) and the color image from the second display is in an arrangement in the opposite sequence (color image green is in a “p” polarization sequence).

As to claim 21, Jachimowicz teaches inverting the image data for one of the images (e.g. inverting the image data for the red image display by projection lens) for presenting for viewing in substantially superposed relation to the other image (the green image data is not inverted and now is located over the inverted red image data, see fig. 2).

As to claim 29, Christie teaches wherein the images can be separated based on polarization (as can be seen in Fig. 3, the polarized lights are outputted from 205r and 205l, these two polarized lights are separated and are combined with a beam splitter).

As to claim 31, Christie teaches the displays are liquid crystal displays (col. 9, lines 9-12).

As to claim 40, Jachimowicz teaches the light incident on the beam splitter from the two displays (the beam transmitted to beam splitter 22) has circular polarization (circular polarization of "s" and "p") in the same sense, and wherein the images can be separated based on polarization (the images of polarization in "s" are transmitted to the right eye and images of polarization in "p" are transmitted to the left eye).

6. Claims 24 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christie in view of Ohtani (U.S. Patent No. 5,519,485).

As to claim 24, Christie teaches a display system, comprising,

a first display having optical polarization characteristics (LCD 205l),

and having optical polarization characteristics (LCD 205r), (col. 9, lines 29-33),

the second display being at an angle to the first display (there is a 90 degrees angle between the two displays)

a beam splitter (207) at the bisectrix of the angle between the first and second displays (see fig. 3) combining in superimposed viewable relation along a common light path images from the second display with images from a corresponding area of the first

display (the beam splitter combines the images outputted from the LCDs 205r and 205l) by transmitting an image from one display (the beam from LCD 205l is transmitted) and reflecting an image from the other display (the beam from LCD 205r is reflected).

Christie does not mention the second display is smaller than the first display.

Ohtani teaches the second display (412) is smaller than the first display (411), (col. 3, lines 64 - col. 4, line 4). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the display sizes of Ohtani to the display system of Christie because the second screen serves as to display a stereo image falling within a range displayed by the first display at a second magnification larger than the first magnification (col. 4, lines 4-7).

As to claim 39, Christie teaches at least part of the first display other than said corresponding area is directly viewable (the part of display other than the corresponding area is viewable to a viewer because light from the image LCDs is combined by a beam splitter that directs the light toward a projection lens 210, the projected light is send to the viewer, (col. 9, lines 15-19).

7. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Christie in view of Ohtani, and further in view of Jachimowicz.

As to claim 38, Jachimowicz teaches the beam splitter (22) combines images (images 20 and 16 are combined) while rotating the plane of linear polarization or sense of circular polarized light (the beam splitter combines the image data while a circular

polarized light is transmitted to the beam splitter by circular polarizers “s” and “p”). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added circular polarized light of Jachimowicz to the display system of Christie as modified by DeGroof because to provide the viewer with a full color 3D image screen (col. 3, lines 65-66).

Response to Arguments

8. Applicant's arguments filed 09/03/2009 have been fully considered but they are not persuasive.

Applicant argues that Christie fails to disclose the claimed display systems and display method including a pair of displays herein polarization of light incident on the beam splitter from each display is along the same direction.

Examiner respectfully disagrees with the applicant because the reference of Christie teaches a pair of displays wherein the polarized light from the two displays is applied to a beam splitter and the two light paths are along the same path toward the assembly lens.

The term “along the same direction” is a broad term and should be explained in more details in the claims because the term "along the same direction" can be interpreted as the light paths are toward a same destination/direction, therefore the light paths are along the same direction.

Therefore for the reasons given above the prior art reference of Christie reads on the newly added limitations to the claims.

Applicant argues that the limitation of "a second display smaller in area than the first display" taught by Ohtani fails to cure the deficiencies of Christie with respect to claim 24 because Ohtani fails to disclose the claimed display system. Applicant further argues that Ohtani has been found to disclose a pair of displays that are the same size, wherein Ohtani in Fig. 1shows display 41 and 42 being the same size.

Examiner respectfully disagrees with the applicant because Ohtani in col. 3, line 65 to col. 4, line 4 teaches that one of the display screens is smaller than the other display screen. Fig. 1 of Ohtani might not be to the exact scale, however Ohtani teaches that one of the display screens can be smaller than the other display screen. This teaching of Ohtani reads on the applicant's limitation of claim 24. Examiner would like to point out that the applicant in Figs. 1, 2, 3, 5, 6, 8A, 8B, 8C, 9-13, 17 and 18 does not show any of the displays being smaller than the other display.

Applicant argues that Ohtani fails to disclose the display system arranged as claimed in claim 24. Examiner would like to mention that the combination of Christie and Ohtani reads on the limitations of claim 24 because Christie teaches all the elements of claim 24 except the second display being smaller than the first display wherein this limitation is taught by Ohtani because the second screen serves as to display a stereo image falling within a range displayed by the first display at a second magnification larger than the first magnification.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Inquiry

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PEGEMAN KARIMI whose telephone number is (571)270-1712. The examiner can normally be reached on Monday-Thursday 9:00am - 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Pegeman Karimi/
Examiner, Art Unit 2629
November 24, 2009

/Chanh Nguyen/
Supervisory Patent Examiner, Art Unit 2629